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Development of Renovation Passports: Policy Guidelines for Ukraine

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About EPBD.wise

EPBD.wise aims to kickstart action to bring to life the recast European Energy Performance of Buildings Directive (EPBD) as part of making EU climate goals a reality. Over the course of three years, project partners worked with public authorities (such as municipalities, energy agencies, etc.) in six European countries: Bulgaria, Greece, Hungary, Poland, Romania and Ukraine. The overarching aim was to ensure the design, implementation and evaluation of key provisions to ensure EU buildings align with climate goals. Starting with investigation of needs and good practices in the six focus countries, EPBD.wise builds replicable models to support the widespread implementation of effective measures across Europe.

For more information, visit the [EPBD.wise website](#).

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ABBREVIATIONS AND ACRONYMS

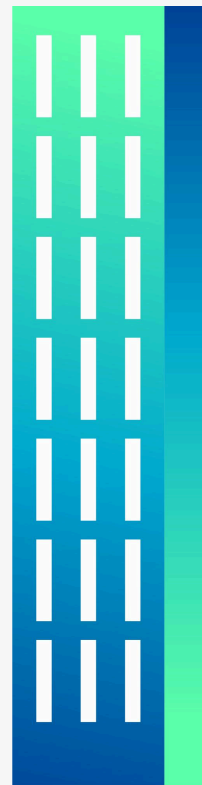
API	Application programming interface
EED	Energy Efficiency Directive (EU/2023/1791)
EPBD	Energy Performance of Buildings Directive
MEPS	Minimum energy performance standards
NBRP	National Building Renovation Plan
nZEB	Nearly zero-energy building
RP	Renovation Passport (EPBD (2024/1275))
SAEE	State Agency on Energy Efficiency and Energy Saving of Ukraine
ZEB	Zero-emission building

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A RENOVATION PASSPORT FRAMEWORK



A1 EPBD Article 12: Renovation passport

Article 12 of the Energy Performance of Buildings Directive (EPBD) presents the renovation passport (RP) as a voluntary tool that Member States can decide to make mandatory. Even if the renovation passport remains voluntary at the building level, it is important to develop the national scheme in such a way that it can be applied efficiently and effectively. Article 12 and the detailed Annex VIII of the EPBD provide the requirements for developing the renovation passport scheme, as well as the links to other policy elements, particularly the energy performance certificate (EPC). By 29 May 2026, Member States must establish a national scheme for renovation passports based on the framework in Annex VIII.

A2 EPBD Annex VIII: Mandatory and voluntary elements

Annex VIII of the EPBD sets out the mandatory requirements for the renovation passport and provides additional information on its optional content. While the scheme is voluntary by default, it is at the discretion of the Member States to enforce it as mandatory. In any case, mandatory elements as shown in Annex VIII must be included.*

The following tables present the four articles of Annex VIII and their requirements as well as suggestions on how to address them.

*Please note that the terminology regarding Annex VIII in this report has not yet been aligned with Commission Notice providing guidance on new or substantially modified provisions of the recast Energy Performance of Buildings Directive (EU) 2024/1275. As was the case during the drafting process, this report continues to use the term 'voluntary' with reference to Annex VIII (instead of 'optional' as used in the Commission Notice).

Table 1 Requirements of the renovation passport and suggestions for how to meet them (paragraph 1)

Paragraph 1	Suggestions to meet requirements
The renovation passport shall include:	
(a) information on the current energy performance of the building	Up-to-date EPC
(b) a graphical representation or graphical representations of the roadmap and its steps for a staged deep renovation	Layout design in connection with (d) and (e); standardised suggestions – cost-effective measures
(c) information on relevant national requirements such as minimum energy performance requirements for buildings, minimum energy performance standards and rules in the Member State on the phasing out of fossil-fuel used in buildings for heating and cooling, including application dates	To be complemented by the more detailed provision of paragraph 2 (b) (ii), and in compliance with NBRP
(d) a succinct explanation on the optimal sequencing of steps	Layout design in connection with (b) and (e); optimal sequencing depends on age of elements and maintenance and repair cycles
(e) information about each step, including:	Layout design in connection with (b) and (d)
(i) the name and description of the renovation measures for the step, including relevant options for the technologies, techniques and materials to be used	To be included in the calculation tool
(ii) the estimated energy savings in primary and final energy consumption, in kWh and in percentage improvement compared to the energy consumption prior to the step	Estimation with calculation tool
(iii) the estimated reduction of operational greenhouse gas emissions	Estimation with calculation tool
(iv) the estimated savings on the energy bill, clearly indicating the assumptions on energy costs used for the calculation	Estimation with calculation tool
(v) the estimated energy performance class of the energy performance certificate to be achieved following completion of the step	Estimation with calculation tool
(f) information about a potential connection to an efficient district heating and cooling system	Display map with building location (link with energy spatial planning)
(g) the share of individual or collective generation and self-consumption of renewable energy estimated to be achieved after the renovation	Display map with building location (link with energy spatial planning)
(h) general information on available options for improving construction products' circularity and for reducing their whole-life-cycle greenhouse gas emissions, as well as wider benefits related to health and comfort, indoor environmental quality and the improved adaptive capacity of the building to climate change;	Link to one-stop shops Relevant for EU Taxonomy Display map with building location and climate change risks (heat island, heavy rains, flooding)

(i) information on available funding and links to the relevant web pages indicating the sources of such funding;	Link to one-stop shops
(j) information on technical advice and advisory services, including contact details and links to the web pages of one-stop shops.	Link to one-stop shops

Table 2 Requirements the renovation passport may include and suggestions on how to proceed (paragraph 2)

Paragraph 2	Suggestions
The renovation passport may include:	
(a) an indicative timing of the steps	To be included; to be considered in layout design
(b) for each step:	
(i) a detailed description of the technologies, techniques and materials to be used, their advantages, disadvantages and costs	Link to one-stop-shops
(ii) how the energy performance of the building would compare to minimum energy performance requirements for buildings undergoing major renovation, nearly zero-energy building and zero-emission building requirements after completion of the step and how the energy performance of the building elements replaced would compare to minimum energy performance requirements for single building elements, where these exist	To be included; to be considered in layout design Necessary for ESG reporting and proving compliance with EU Taxonomy Necessary for national building renovation plan
(iii) the estimated costs for carrying out the step	To be included: only for the next steps in the correct sequence which are planned for immediate implementation
(iv) the estimated payback period for the step, with and without any available financial support	
(v) the estimated time needed to carry out the	
(vi) where available, the reference values on the life-cycle greenhouse gas emissions for the materials and equipment and links to the relevant web pages where they can be found	Link to one-stop shops for environmental product declarations (EPDs)
(vii) the estimated lifetime of measures and the estimated maintenance costs	To be included: information on extension of building life
(c) independent modules on:	
(i) the typical trades necessary or recommended for carrying out energy renovations (architects, advisors, contractors, suppliers and installer, etc.) or links to the relevant web pages	Link to one-stop shops
(ii) a list of relevant architects, advisors, contractors, suppliers or installers in the area, that may include only those fulfilling certain conditions such as matching higher qualification or certification labels or conditions, or links to the relevant web pages	Link to one-stop shops

(iii) the technical conditions needed for an optimal roll-out of low temperature heating	To be included as renovation scenario
(iv) how the renovation steps and additional measures could improve the smart readiness of a building	To be included as renovation scenario
(v) technical and safety requirements for materials and works	Not part of RP, regulated elsewhere
(vi) the underlying assumptions behind the calculations provided or links to the relevant web page where they can be found	Information to be included
(d) information on how to access a digital version of the renovation passport	Information to be included, e.g. link to EPC database
(e) any major renovations made to the building or building unit, as referred to in Article 8②, and any retrofitting or replacement of a building element that forms part of the building envelope and which has a significant impact on the energy performance of the building envelope, as referred to in Article 8②, where such information is made available to the expert carrying out the renovation passport	Information to be included
(f) information related to seismic safety, where such information relevant to the building is made available to the expert	Display a map with building location and risk assessment
(g) upon request of and on the basis of information made available by the current building owner, an attachment containing additional information, such as the adaptability of spaces to evolving needs and any planned renovations.	Up-to-date drawings and building information (architecture, statics, heating and cooling, electrical, plumbing)

Table 3 The renovation passport and the EPC, and suggestions on how to proceed (paragraph 3)

Paragraph 3	Suggestions on how to meet requirements
Regarding the status of the building prior to the renovation steps, the renovation passport shall consider, to the extent possible, information contained in the energy performance certificate.	Link with paragraph 1(a): set the requirement for an up-to-date EPC as the starting point for the RP and make use of the EPC data

Table 4 The set of standard conditions and suggestions on how to proceed (paragraph 4)

Paragraph 4	Suggestions on how to meet requirements
Each metric used for estimating the impact of steps shall be based on a set of standard conditions.	Estimating the impact of renovation steps requires two estimations: 1. Based on user behaviour and energy bill 2. Based on the standard conditions used for the EPC

A3 Connection between renovation passports and energy performance certificates

The RP and EPC are closely connected. Usually, the same dataset about the building, namely up-to-date drawings and building information (architecture, statics, heating and cooling, electrical, plumbing), is the starting point for both the RP and EPC. The RP takes the specific user behaviour and energy cost into account but also needs to provide an assessment under standard conditions, which is in effect an EPC.

There are several options for linking the RP with the EPC:

- 1 The EPC is extended to cover the requirements of Article 12, including Annex VIII. This also involves extending the existing EPC tool, as the RP will substitute the EPC recommendations. The recommendations part of the EPC tool will need to be revised anyway due to the more detailed requirements of the EPBD; this could be done in a way that also complies with Article 12.
- 2 The RP is issued separately, necessitating data exchange between the RP and EPC tools to facilitate the process.
- 3 The digital building logbook is used as the basis for both the RP and the EPC, meaning that an always up-to-date repository of building data is set up and maintained. This can be used as the basis for assessments for RPs and EPCs, as well as ESG reporting or other purposes. The advantage of the third option is that the adaptation of software products will be easier.

In options 1 and 2, data is entered into the calculation directly, meaning that data needs to be re-entered when an updated calculation tool is available. Data exchange between tools is usually hampered by loss of information and the need for corrections. However, the possibilities of reusing EPC data for the renovation passport depend on the quality of EPC data.

There are several issues to be considered:

- EPCs are valid for 10 years, meaning that changes to the building could have taken place during that period, resulting in EPC data being outdated.
- The EPCs issued for existing buildings during rental and sale are often simplified based on the building typology and year of construction (i.e. based on default data), providing little added value for the preparation of the RP.
- Sources of error, such as in the definition of the reference area, can lead to faulty EPCs, which are not always detected by the independent control system.

Regarding EPC revisions, according to EPBD 2024/1275, the focus should be on minimising the scope of interpretation for input data to improve data accuracy and reliability, as this has an impact on the ability to re-use EPC data for the RP. Alternatively, the flow of information could be reversed, with the site visits undertaken during RP preparation feeding into the EPC. This highlights the need for common tools or at least seamless data integration.

A4 Options for implementing renovation passports

The needs of different stakeholders, as well as the wide range of possible uses of the RP, call for a flexible approach to its implementation: the RP can be introduced as part of the EPC or as a standalone document supplementing the EPC.

Integrating the RP into the EPC offers clear advantages in terms of legal framework and standardisation. On the other hand, developing the RP as a standalone document opens up new possibilities for more comprehensive use, particularly with regard to individual adaptations and specific requirements, such as those that exist in the real estate industry or in complex renovation projects. The RP could also be used for existing buildings to demonstrate that they are on track to meet minimum energy performance standards (MEPS) or nearly zero-energy building/zero-emission building (nZEB/ZEB) targets.

In addition, it may be necessary to develop tailored schemes for detached houses, apartment buildings and non-residential buildings because renovation measures, maintenance processes and financing instruments differ. An additional category of public buildings may be necessary to support the respective part of the NBRP and to use the RP as an alternative approach to meet renovation requirements for public buildings in the Energy Efficiency Directive (EU) 2023/1791.

A4.1 The renovation passport as part of the EPC

The intention is for the RP to replace the recommendations provided in the EPC.

The EPC is used for the comparative assessment of buildings regardless of user behaviour and is mandatory in certain cases. The RP, however, explicitly takes user behaviour into account, is intended to facilitate refurbishment, and documents all renovation steps. If the RP is established as an integral part of the EPC, an obligation to update the EPC after each renovation step must be introduced as well.

The main advantage of including the RP within the EPC is reduced cost for operating one scheme instead of two (expenses for software, staff, database, control system).

However, benefits will depend on the reputation of the EPC scheme and the quality of the EPC information, which often go hand in hand: if there are trustworthy EPCs (based on high quality and reliable data), the EPC scheme will tend to have a good reputation. In such an environment, it may make sense to extend the recommendation-related part of the EPC, leveraging the well-established EPC scheme, rather than promoting a new RP scheme.

A4.2 The renovation passport as a standalone document

If the EPC scheme suffers from reputational problems, operating the RP scheme separately may be a viable option, eliminating the problems of the EPC. A separate scheme also makes sense if tailored approaches for certain building types, construction periods and target groups are more effective than the categories provided for in the EPC. Furthermore, the RP has the capacity to address issues that the EPC is not designed to tackle, for example, displaying measures for adapting buildings to climate change. This will serve the broader needs of the real estate industry, helping to prevent assets from becoming stranded.

The main challenge is to define the interface with the renovation planning: where does the renovation passport end and the renovation planning begin?

For the RP to be used effectively by different target groups, it will be necessary to define different types of renovation passports, also in terms of the level of detail. As well as the “simplified renovation passport” proposed in Article 12, the regular renovation passport can be designed with different levels of detail. These levels must be specified and clearly named (for details, see next chapter). Only then can they be implemented effectively.

A5 Renovation passport implementation frameworks suggested by EPBD.wise

Based on the information presented above, four generic options for RP schemes have been identified, which are described in the following sections. They build on different ways to use the voluntary Annex VIII elements in combination with the mandatory elements, tailored to the needs of specific target groups. The acronyms have been chosen to simplify the discussion about the possible implementation frameworks.

The options developed and recommended by the EPBD.wise project are described in more detail in dedicated sub-chapters below:

- RP scheme in compliance with all mandatory requirements, extended with selected voluntary features
- RP scheme with mandatory (and voluntary) requirements extended with features not listed explicitly in Article 12 and Annex VIII, but in line with the intention of the EPBD recast.

A5.1 Four generic RP options

There are four basic options, whereby the first one can be divided into two:

- 1 RP scheme in compliance with all mandatory requirements
 - a. Regular RP – ReReP
 - b. Simplified RP – SiReP
- 2 Extended RP scheme in compliance with all mandatory requirements and extended with all voluntary features – ExReP
- 3 RP scheme in compliance with all mandatory requirements, extended with selected voluntary features – SEReP
- 4 RP scheme according to one of the above listed options extended with features not listed explicitly in Article 12 and Annex VIII, but in line with the intention of the EPBD – SEReP+

Table 5 shows the relevance of the various options for the different building types. While ReReP could be used to access financing schemes, SiReP provides a renovation roadmap for homeowners at minimal cost. Depending on the additionally applied criteria, the RP could be used by property evaluators and facility managers, and by public building owners to prove compliance with NBRP and EED-related requirements.

Relevant for RP option 1 to option 4:

Link with the one-stop shop: As shown above (and also in depth in Annex A), there are many requirements related to the provision of information. To ensure that this information is always up to date, and to keep the cost of the RP low, this information should be standardised as much as possible and be provided by the one-stop shop in the area where the building is located.

Ideally, a function of the RP tool is to enable the expert to select from a list of links to further information on the internet, e.g. addresses of one-stop shops that are updated regularly and, by choice, are incorporated into the specific RP.

Link with the digital building logbook: The digital building logbook will be the central source of information for buildings in the future, and RP programmes must reflect relevant developments. Processes will differ depending on who maintains the digital building logbook.

There are basically two options:

- Government-led digital building logbook (public administration oversight)
- Private-sector or hybrid digital building logbook (collaboration between public and private entities and/or the chambers of engineers/architects)

Table 5 Various RP schemes and their relevance for different building types. As ReReP is included in the ExReP, SReReP and SReReP+ variants, these will also be recognised by the financing institutions.

	ReReP	SiReP	ExReP	SReReP	SReReP+
Non-residential					
Detached house	Financing				
Apartment building	Financing	Renovation roadmap at minimum cost for home-owners	Covers pre-planning stage; could be done on demand	As part of maintenance and repair plan: could be done by inhouse qualified expert (facility manager) Provides input for property valuation	
Non-residential					
Office	Financing		Covers the pre-planning stage; could be done on demand	As part of the maintenance and repair plan: could be done by inhouse qualified expert (facility manager)	
Health	Financing			Provides input for property valuation	
Educational	Financing				
Public					
Public buildings	Financing				Covers NBRP and EED-related obligations

Generic specifications of option 3 (SReReP) and option 4 (SReReP+) are shown in the next subchapters, because these are the options recommended by EPBD.wise. They are considered essential by EPBD.wise for the success of a renovation passport scheme on the real estate market. Mandatory RP elements according to Annex VIII alone do not meet the needs of important target groups such as facility managers and property valuers, but the inclusion of all voluntary RP elements according to Annex VIII makes the RP expensive, and some elements that are considered crucial to success (e.g. validity period) are even missing from these voluntary elements.

A5.2 Recommended option: SReReP

The SReReP scheme complies with all mandatory requirements and is extended with selected voluntary features. The recommended selected voluntary features and why they are chosen are shown in Table 6 below.

Table 6 Voluntary features of paragraph 2 Annex VIII to be included in RP scheme

Relevant features of paragraph 2	Suggestions on how to proceed	Justification
(a) an indicative timing of the steps	To be included; to be considered in layout design	Useful information for building owners, facility managers; useful information for NBRP
(b) for each step:		
(ii) how the energy performance of the building would compare to minimum energy performance requirements for buildings undergoing major renovation, nearly zero-energy building and zero-emission building requirements after completion of the step and how the energy performance of the building elements replaced would compare to minimum energy performance requirements for single building elements, where these exist	To be included; to be considered in layout design	Necessary for ESG reporting and proving compliance with EU Taxonomy Necessary for NBRP
(iii) the estimated costs for carrying out the step	To be included: only for the next measures in the correct sequence which are planned for immediate implementation	Necessary information for building owners, facility managers
(iv) the estimated payback period for the step, with and without any available financial support		
(v) the estimated time needed to carry out the step		
(vii) the estimated lifetime of measures and the estimated maintenance costs	To be included: information on extension of building life	Relevant information for property valuation (and thus also financing institutions)
(iii) the technical conditions needed for an optimal roll-out of low temperature heating	To be included as renovation scenario; standardised as much as possible	Necessary to prevent owners from installing inefficient heat pumps
(iv) how the renovation steps and additional measures could improve the smart readiness of a building	To be included as renovation scenario; standardised as much as possible	Necessary to convince building owners to contribute to grid flexibility

(vi) the underlying assumptions behind the calculations provided or links to the relevant web page where they can be found	To be included	Display the type of RP, data sources and tools applied
(d) information on how to access a digital version of the renovation passport	To be included	Link to EPC database and information on how to access

A5.3 Recommended option: SEReP+

The SEReP+ scheme is extended with features not listed explicitly in Article 12 and Annex VIII, but in line with the intention of the EPBD.

Necessary features to achieve the expected impact on the property market, which are not listed explicitly in Article 12 and Annex VIII, are:

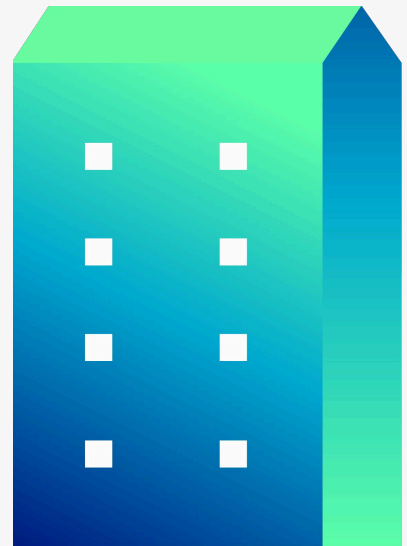
- 1** The RP is updated in the EPC database and the digital building logbook (if available) after each renovation step.
- 2** The updated RP contains detailed information about the next renovation step, and the timing of the planned implementation.
- 3** The RP has a validity of five years. If no measures are implemented within this period, the RP becomes invalid.

The first aspect ensures that the current energy performance condition of the renovated building is represented in the EPC database. This is important because the EPC database becomes the central data repository for developing and monitoring policies, most importantly the NBRP.

The long time horizon until 2050 will bring technological and economic changes, making it impossible to specify technical and economic details for renovation steps in 10 or 20 years. However, it is possible to provide detailed information on the next renovation step within a period of five years. Describing the next renovation step in more detail makes it easier for the building owner to take the necessary actions, increasing the likelihood of implementation.

The third aspect is also related to the long time horizon. If the next renovation step is not implemented promptly, the details will likely become obsolete. The five-year period was chosen to achieve a balance between external developments and the effort required to prepare the RP; it would also be possible to set a shorter validity period of, for example, three years.

GUIDELINES FOR IMPLEMENTING THE RENOVATION PASSPORT IN UKRAINE



Executive summary

As part of the Energy Performance of Buildings Directive (2024/1275), the renovation passport is a key tool designed to guide building owners through the process of staged deep renovation towards zero-emission standards. The RP complements other EPBD instruments such as EPCs, digital building logbooks, minimum energy performance standards (MEPS) and national building renovation plans (NBRPs). This document presents guidelines and implementation recommendations based on national consultations and stakeholder input from Ukraine. It outlines how the RP can be effectively integrated into the country's existing policy, regulatory and technical frameworks.

In Ukraine, existing and future systems such as EPCs and digital building tools provide a foundation for integrating the RP. However, implementation will depend on the alignment of national policies and institutional roles. For example, Ukraine views the RP as a digital tool that will support the reconstruction of the country after the war, connecting it to existing systems such as the E-Construction platform and the Energy Efficiency Fund.

Key recommendations include the need for clear technical definitions, software compatibility and training programmes for local stakeholders. A phased roll-out is recommended, starting with pilot projects, linking the RP to EPC systems, and eventually integrating it into national digital building logbooks. The selection of the appropriate level of detail of the RP scheme, as outlined in this report, should be based on a country's specific context and building stock. Support mechanisms, including financial incentives, one-stop shops and uniform data interfaces, are critical success factors.

Stakeholder concerns were analysed through questionnaires, roundtables and policy forums, leading to tailored guidelines for country-specific RP implementation. To address challenges in distinguishing mandatory from voluntary elements in RP implementation, new terminology was introduced to clarify definitions and enable targeted implementation based on stakeholder needs and building types.

The core focus is on the development of a step-by-step policy roadmap for RP implementation. Key steps are to i) provide technical and policy support, ii) pilot programmes to test and refine the implementation process, and iii) make iterative updates to accommodate evolving recommendations.

The guidance is tailored to Ukraine's future post-war challenges. It supports reconstruction and rehabilitation in connection with energy efficiency and integrates RP elements within the EPC and digital systems. Prioritised building types are apartment buildings, public buildings and structures damaged by war.

1 Introduction

This guidance has been tailored to the needs of Ukraine, an EPBD-wise focus country. Specifically, it aims to support the responsible ministry MinRegion and the Energy Efficiency Fund in creating a programme for the renovation passport in connection with the EPC according to the EPBD (2024/1275).

1.1 Responsible organisations and their roles

The most important players and their roles are as follows:

MINISTRY OF DEVELOPMENT OF COMMUNITIES, TERRITORIES AND INFRASTRUCTURE OF UKRAINE (MINREGION)

<https://mtu.gov.ua/en>

Develops energy efficiency policies and building standards; oversees the implementation of EU Directive 2010/31/EU on the energy performance of buildings.

STATE AGENCY ON ENERGY EFFICIENCY AND ENERGY SAVING OF UKRAINE (SAEE)

<https://saee.gov.ua/en>

Implements national energy efficiency policies; supports the adoption of energy performance certification for buildings; maintains the EPC calculation software.¹

ENERGY EFFICIENCY FUND

<https://eefund.org.ua/en/home>

Implements grant programmes like VidnovyDIM, GreenDIM and EnergoDIM; provides financial and technical support for homeowners' associations.

STATE INSPECTORATE OF ARCHITECTURE AND URBAN PLANNING (DIAM)

Regulates building construction and enforces energy efficiency codes.

HOMEOWNERS' ASSOCIATIONS

Key beneficiaries of energy efficiency programmes; apply for grants from the Energy Efficiency Fund to modernise buildings.

UKRAINIAN ASSOCIATION OF ENERGY SERVICE COMPANIES

<https://100re.org.ua/en/members/krok-vpered>

Drives the development and construction of renewable energy plants.

1. Hofer, G. and Toth, M. (2016). Energy Performance Certificate for Buildings in Ukraine conceptual approach. Presentation, Energy Community, November 2016

1.2 Status quo of relevant legislation

The most important players and their roles are as follows:

Legislative basis of the energy performance certification of buildings, according to Policy and Measure “PM_EE_WEM_05 Energy performance certification of buildings” as described in the national energy and climate plan 2024:² Primary legislative act is the Law of Ukraine “On Energy Efficiency of Buildings” (enacted on June 22, 2017, as Law No. 2118-VIII³).

The following order outlines the procedure for conducting energy performance certification of buildings and specifies the format of the energy performance certificate to be used in Ukraine:

Order of the Ministry of Regional Development, Construction, and Housing and Communal Services of Ukraine No. 172, dated July 11, 2018, titled “On Approval of the Procedure for Certification of Energy Efficiency and the Form of Energy Certificate,” registered with the Ministry of Justice of Ukraine on July 16, 2018, under No. 825/32277.

The following resolution establishes the framework for certifying professionals involved in energy efficiency assessments, building energy audits, and inspections of technical systems within buildings:

Resolution of the Cabinet of Ministers of Ukraine No. 40, dated January 16, 2024, titled “On Approval of the Procedure for Certification of Persons Who Intend to Perform Activities for Certification of Energy Efficiency, Energy Audit of Buildings, and Inspection of Technical Installations.”

Database of building energy performance: An EPC database was established and, until 2020, was managed by the State Agency for Energy Efficiency (SAEE). Since 2020, the database has been managed in the Unified State Electronic System in the Construction Sector (E-construction). As of 2024, more than 20,000 energy performance certificates in PDF format have been registered.

The database has been further developed to also include operational data as shown in Figure 1 (<https://e-construction.gov.ua/document/optype=13>).

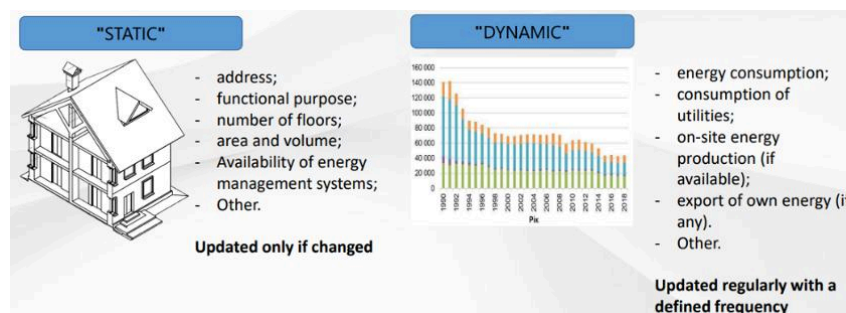


Figure 1 National database of operational and energy performance of buildings that involves static and dynamic data (Source: Artur Obidnyk, MinRegion, Head of the Department of Methodological Support and Regulation of Energy Efficiency, EPBD.wise policy forum, 2 July 2024)

2. https://commission.europa.eu/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en and www.energy-community.org/dam/jcr:9d144283-08ed-410b-a670-7fd15c7782f2/1_NECP_EnMachineTranslation.pdf

3. https://climate-laws.org/documents/law-no-2118-viii-on-energy-efficiency-of-buildings_984e?id=law-no-2118-viii-on-energy-efficiency-of-buildings_0259

2 Identified policy needs

Most importantly, the RP scheme for Ukraine must respond to the challenges of a post-war situation. In view of the ongoing war and the enormous destruction it has caused, it is crucial to plan concrete measures for the reconstruction and rehabilitation of the affected regions at an early stage.

For the post-war period, a detailed approach is proposed to cover a thorough building analysis, support in the preparation of tenders, the awarding of contracts to suitable companies and the implementation and acceptance of the work. All these steps are closely linked to financing, with reconstruction following war damage integrated into the financing scheme. This could make a significant contribution to the reconstruction of the country and at the same time create new jobs. The legal basis for these measures can be developed now to facilitate and accelerate post-war reconstruction.

Obligation for holistic building improvement is favoured. Although comprehensive approaches may initially appear costly, they lead to lower maintenance costs over the entire life cycle and therefore improve cost efficiency. Technical assistance is necessary to meet the demand for simple, owner-oriented tools, clear zero-emission building (ZEB) criteria and concrete funding models.

3 The scope of the renovation passport

3.1 Determination of voluntary criteria to be considered

The RP consists of mandatory and voluntary elements as defined by EPBD Article 12 and Annex VIII. Whether to include only mandatory elements or combinations of mandatory and voluntary elements will depend on the target groups and the purpose of the RP scheme. It is therefore essential to first define the exact scope of the RP scheme to ensure it is efficient and effective.

The general EPBD-wise guidance on implementing RP schemes explains the benefits of combining mandatory elements of Annex VIII with different voluntary elements for specific target groups. It also explains the two basic options of 1. introducing the RP as part of the EPC, and 2. introducing the RP as an additional document to complement the EPC. The RP schemes suggested by EPBD-wise (SEReP and SEReP+) are also described in more detail. This information is relevant for determining the scope of the country-specific approach.

3.2 Building types considered

To minimise costs for the end-user, different RPs can be tailored to the respective use depending on the building type. **We suggest the RP scheme aims at addressing:**

- Apartment buildings, based on the experience of Energy Efficiency Fund
- Public non-residential buildings (focusing on offices and educational buildings), in view of complying with the provisions of the Energy Efficiency Directive (EED) recast (2023/1791).

According to EED Article 6, public buildings at federal, state and municipal level must either achieve a renovation rate of 3% or demonstrate equivalent energy savings through alternative measures. Article 6 specifies that:

For the purpose of applying that alternative approach, Member States shall:

(a) ensure that, each year, a renovation passport is introduced, where applicable, for buildings representing at least 3 % of the total floor area of heated and/or cooled buildings that are owned by public bodies. For those buildings, the renovation to nearly zero-energy building shall be achieved at the latest by 2040;

(b) estimate the energy savings that paragraphs 1 to 4 would generate by using appropriate standard values for the energy consumption of reference public bodies' buildings before and after renovation to be transformed into nearly zero-energy buildings as referred to in Directive 2010/31/EU.

4 Getting started with tailoring the renovation passport for Ukraine

- 1 Identify areas and define conditions under which the RP should be used as a tool for post-war reconstruction in Ukraine:** In areas where building repairs are possible, these should be carried out in such a way that energy efficiency and renewable energy supply are also considered. Repair work that needs to be carried out so that measures to improve a building's energy efficiency can subsequently be implemented should be part of the overall renovation budget, which is financed from a special fund.
- 2 Identify a contact person for E-construction:** The Unified State Electronic System in the Construction Sector (E-construction) including the EPC database will play a central role in developing and implementing the Ukrainian RP scheme. A contact person should be identified to discuss and refine the envisaged technical concept, taking into account the costs of programming and IT maintenance during operation.
- 3 Define the voluntary criteria for the Ukrainian RP scheme:** The suitable voluntary criteria from Annex VIII should be identified, along with additional criteria necessary for an effective RP scheme, for example in view of the obligations set by the NBRP.

In addition to the mandatory criteria of Article 12 and Annex VIII, other voluntary and additional criteria [shown in chapter A](#) should be explored.

This exercise should be carried out for apartment buildings and for public non-residential buildings, to confirm whether the criteria should be the same or whether it would be more efficient and effective to introduce two different schemes. The selection of criteria is preliminary and serves to define the scope of the discussion with the experts on the E-Construction platform and the EPC calculation tool.

5 Developing a roadmap for implementing the renovation passport

5.1 Step 1 – Analyse the potential of extending E-Construction

The E-Construction platform could be extended towards an interoperable digital building logbook. Currently, the National Database of Buildings contains EPCs in PDF format. Work is being done to store all information in a machine-readable format. In this context, the “independent control system” required by the EPBD has been further developed; before, it was done manually.

Focus is on the recommendations of the EPC, as they need to be structured to comply with EPBD Article 12, with distinct data fields that can be further processed in the database.

Objective: Clarify the potential and the possible timeline for further development in view of implementing a cost-efficient and effective RP scheme.

Action:

- 1 Coordinate with Step 2.
- 2 Get access to the description of the current version of the E-Construction platform.
- 3 Analyse the current version of the E-Construction platform in view of recent developments such as the digital building logbook.
- 4 Write a short report on options for further development.

Outcome: A short paper as basis for decision-making.

5.2 Step 2 – Review the EPC calculation kernel, the software tools and the link with the E-Construction platform

In principle, there are two approaches towards building certification: 1. entering the building data into a software tool that produces the certificate and uploading it to the building database, or 2. entering the building data directly into the building database and feeding it from there into a software tool that issues the EPC or other building assessments. The second option seems more feasible in the long term, in view of the requirements of the RP and other developments.

Objective: Clarify the potential and the possible timeline for further development in view of implementing the RP scheme based on option 2.

Action:

- 1 Coordinate with Step 1.
- 2 Get access to the description of the current version of the EPC calculation kernel and the software tools.
- 3 Analyse the current version of the EPC calculation kernel and the software tools in view of a possible extension to cover the RP and in view of recent developments such as the digital building logbook.
- 4 Write a short report on options for further development.

Outcome: A short paper as basis for decision-making.

5.3 Step 3 – Software specification: data fields and data processing description, visual design of RP scheme and other features

The most important requirements are:

- Simple, practical user interfaces and a clear digital RP format that integrates seamlessly with the EPC workflow.
- Real-time performance tracking (before/after implementation of renovation measures), version control of implemented steps, and flags for solar-ready measures where applicable.

The information describing the recommendations for improving the building needs to be translated into a specification that can be further used by software developers. The table below shows some example data fields and their specification. For example, a table containing these data fields could form the basis for creating an XML file as an interface between the EPC database and various software applications.

Table 7 Example data fields and their specification

Variable	Data type	Unit
Status: Renovation completed	category	
Upload date of EPC	datetime	
Last valid EPC	boolean	
Whole building	boolean	
Usage profile (residential, non-residential; categories within residential and non-residential)	category	
Primary energy demand non-renewable site climate specific	numeric	kWh/m ² a
Primary energy demand renewable site climate specific	numeric	kWh/m ² a

In addition to the data fields needed to describe the recommendations, algorithms must be defined to record the implementation of recommendations and to create a history of improvement measures for each building or building unit. For this purpose, a version number, date or update identifier is necessary.

In addition, resilience fields (in areas such as school or hospital operations) are required: data is recorded that describes how well the system can continue to function in the event of disruptions (e.g. emergency preparedness, security procedures, recovery time, measures to maintain operations).

For versioning, it is important that the only reference point for all information is the building and not the assessor. Using the ID of the building, which can be the address and the geo-coordinates or a unique identity assigned by the statistical office, makes it possible to track its improvement.

In addition to technical aspects of front-end and back-end development, the visual design is important for effective market communication.

Objective: Develop the specification for software development and visual design.

Action:

- 1 Clarify the interfaces with the EPC database and the Energy Efficiency Fund or any other entity that will manage the financing programme.
- 2 Describe (i) the process of setting up the renovation roadmap which corresponds to the recommendations of the EPC, and (ii) the process of tracking the implementation of recommendations.

- 3 Describe the necessary data fields and the algorithms that determine how they are processed.
- 4 Specify the elements of front-end and back-end development including visual design requirements.

Outcome: A preliminary specification for the software developer and visual designer.

5.4 Step 4 – Review the Energy Efficiency Fund programmes

The VidnovyDIM, GreenDIM, and EnergoDIM programmes are all initiatives of the Ukrainian Energy Efficiency Fund, but they differ in their focus, target beneficiaries and funding priorities, as shown in the table below.

Table 8 Overview of Energy Efficiency Fund programmes

Feature	VidnovyDIM (restoration)	GreenDIM (renewable energy)	EnergoDIM (energy efficiency)
Purpose	Restoration of war-damaged multi-apartment buildings	Promotion of eco-friendly, low-carbon housing upgrades	Improving energy efficiency in multi-apartment buildings
Target audience	Homeowner associations in war-affected areas	Homeowner associations nationwide	Homeowner associations nationwide
Grant coverage	Up to 100% for damaged buildings	Up to 70% for green energy solutions	Up to 70% for energy efficiency upgrades
Key focus areas	<ul style="list-style-type: none"> - Reconstruction of destroyed structures (walls, roofs, windows, etc.) - Energy-efficient modernisation 	<ul style="list-style-type: none"> - Renewable energy (solar panels, heat pumps, etc.) - Smart energy systems 	<ul style="list-style-type: none"> - Insulation (walls, roofs, windows, basements) - Heating and ventilation modernisation
Application process	Damage report + energy audit + homeowner association application	Energy audit + homeowner association application	Energy audit + homeowner association application

The EnergoDIM programme consists of two packages:

Package A (light) consists of relatively inexpensive energy efficiency measures with a high return on investment (primarily modernisation of the building's technical systems).

Package B (comprehensive) includes all measures of Package A (if they were not implemented earlier), as well as thermal insulation of enclosing structures (walls, roof, attic, basement). The grant is a partial reimbursement of the costs of implementing energy efficiency measures.

Objective: Evaluation and decision regarding financing the RP scheme.

Action:

- 1 Examine the take-up of current Energy Efficiency Fund programmes and their subsidy coverage, including the outlook for the coming years (donors and expected amounts).
- 2 Based on the evaluation results, decide if the RP scheme will:
 - a) be established as fourth funding programme of the Energy Efficiency Fund
 - b) replace one of the existing funding programmes
 - c) be integrated into the VidnovyDIM (restoration) programme
 - d) be integrated into all the existing funding programmes.
- 3 Consider the EPBD-wise project team's recommendation, which is to start with option a) and change to option d) later on. This is because introducing a new programme takes time and effort from an administrative point of view and, usually, during the starting phase there are lessons to improve the programme. These activities should not hamper the implementation of the existing programmes. The change to option d) later will contribute to achieving the transformation of the building stock to zero-emission standard by 2050.
- 4 Describe the chosen option in more detail.
- 5 Define the next steps for setting up the chosen option.

Outcome: A plan for how to proceed.

5.5 Step 5 – Develop a new funding programme for apartment buildings and public buildings based on the renovation passport

The new funding programme would be based on the RP and include energy efficiency, renewable energy and war restoration measures. The new programme differs from the existing ones as the renovation targets are nearly zero-energy building (nZEB) and zero-emission building (ZEB) standard, the latter to be achieved by 2050.

Effective packages of renovation measures will differ for apartment buildings, offices and educational buildings. Technical studies may be necessary to predefine packages to keep the RP costs low.

In this context, the role of prefabrication⁴ should be highlighted. It enables rapid, quality-assured implementation of renovation measures and supports lenders' due diligence obligations with the data included in the RP.

Objective: Clarify the administrative set up of the new funding programme, including funding conditions.

Action:

- 1 Carry out technical studies to predefine effective packages of renovation measures for different building types, including an estimation of energy savings and investment costs. Consider prefabrication and serial renovation approaches.
- 2 Specify the budget needed for the programme, taking a long-term perspective.
- 3 Specify the process and tools for application, approval, invoicing, and monitoring and control.

4. See for example the Austrian lighthouse project <https://renvelope.at> and the renovation of an apartment building in Vienna – www.renowate.earth/artikel/startschuss-fuer-die-serielle-sanierung-in-oesterreich

- 4 Specify the human, financial and IT resources needed for the programme management, considering development in digital building logbooks and one-stop shops.
- 5 Clarify if the Energy Efficiency Fund could also manage a programme for public buildings (offices and educational buildings), or which other entity would be able to manage the programme.
- 6 Consult with stakeholders.
- 7 Plan for a pilot phase.
- 8 Analyse the lessons learnt and improve the set-up and the processes accordingly.
- 9 Compile all information and process it to form an implementation plan.

Outcome: Implementation plan for the programme.

5.6 Step 6 – Adjust the legal framework

Based on the work done and the information gathered in the previous steps, the legal framework can be adapted accordingly.

Objective: Adapt the legal framework for implementing an RP scheme.

Action:

- 1 Process the information generated in the previous steps to form the documents needed for the legislative process.
- 2 Carry out the necessary steps in the legislative process, such as public consultation.
- 3 Make the necessary adjustments.
- 4 Complete the legislative process.

Outcome: The legal framework for the RP scheme is in place.

5.7 Step 7 – Prepare the electronic infrastructure and tools

To ensure successful implementation, it is crucial to outline a clear strategy for the integration of the new electronic infrastructure. This involves setting up a robust project management framework that can oversee the various stages of development, from initial analysis to full deployment. Engaging stakeholders and end-users early in the process will help identify potential challenges and gather valuable feedback, ensuring the system meets their needs and expectations.

Objective: Project plan for developing the electronic infrastructure and tools needed for implementing a renovation passport scheme.

Action:

- 1 Develop a project plan based on the material resulting from steps 1 to 5.
- 2 Secure the budget for this project.
- 3 Implement the project, including testing and pilot phases.
- 4 Integrate the electronic infrastructure and tools into ongoing operations.

Outcome: Electronic infrastructure and tools are in use.

5.8 Step 8 – Training of users, and particularly the assessors

Finally, it is important to establish a comprehensive training programme for all users, but particularly for assessors, providing them with the necessary skills and knowledge to effectively utilise the new electronic infrastructure and tools.

This will maximise the benefits of the system and ensure a smooth transition for all stakeholders involved. The training should include good practice cases and templates so that assessors can easily translate the RP logic into simple owner-oriented outputs (visuals, costs, benefits, timeline).

Objective: Develop a training programme that aligns with the overall goals of the electronic infrastructure project and ensures that all users are equipped to effectively use the new tools.

Action:

- 1 Clearly outline the objectives of the training programme to ensure that assessors are equipped to effectively use the new tools.
- 2 Develop training materials that cover all aspects of the new system, from basic functions to advanced features.
- 3 Select appropriate training methods based on the assessors' preferences and the complexity of the content.
- 4 Plan and schedule training sessions to ensure that all assessors can participate.
- 5 Launch the training programme and provide continuous support to the assessors.
- 6 Evaluate the effectiveness of the programme through assessments and feedback to make improvements and updates to the training materials and methods.

Outcome: Trained assessors are able to produce high quality and easy-to-understand RPs.

6 Affordable access to hardware and software

Providing affordable access to both hardware and software is crucial for roll-out. For small and medium-sized enterprises (SMEs), which often operate with limited resources, the cost of necessary software packages can be prohibitive. These software tools are essential for feeding databases, creating EPCs and uploading RPs, and they require significant storage space and computing power.

To address these challenges, co-working spaces could be established specifically for SMEs. These spaces would offer shared access to high-performance hardware and software, reducing individual costs while maintaining efficiency. Integrating these co-working spaces within one-stop shops could enhance collaboration and streamline processes: regional one-stop shops could host shared hardware/software workstations for SMEs and auditors to lower access costs and accelerate RP/EPC data workflows.

7 One-stop shops

The one-stop shops required by the EPBD represent a central gateway to various target groups. They make it easier for homeowners and the real estate sector to access information. At the same time, they provide a user-friendly point of contact that makes the entire process more efficient and optimises the dissemination of information. A regional one-stop shop approach is recommended. One-stop shops should function as active project facilitators, not only information points.

Targeted outreach is essential for uptake, especially for homeowner associations and small municipalities.

The RP concept includes many requirements related to the provision of information. To ensure that this information is always up to date, and to keep cost of the RP low, this information should be standardised as much as possible and be provided by the local one-stop shop.

8 Digital building logbooks

The digital building logbook will be the core information source for buildings in the future, and RP schemes must take relevant developments into account. Processes will differ depending on who maintains the digital building logbook. It may be possible to further develop the e-construction platform in future to include the digital building logbook. Digital building logbook design should ensure interoperability with EPC and RP data (“single source of truth”⁵), include role-based access (owners, experts, authorities, lenders), and support automatic updates when RP steps are completed.

5. Single source of truth: A central, authoritative place where the correct and up-to-date information is stored, so everyone uses the same data and doesn't rely on different or conflicting versions.

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